



United Nations  
Educational, Scientific and  
Cultural Organization



International  
Hydrological  
Programme

# REGIONAL ACHIEVEMENTS OF THE INTERNATIONAL HYDROLOGICAL PROGRAMME

**REGION 5a**

**AFRICA**



## IHP'S WORK COVERS THE FOLLOWING SIX THEMATIC AREAS

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- Theme 1: Water-related Disasters and Hydrological Change
- Theme 2: Groundwater in a Changing Environment
- Theme 3: Addressing Water Scarcity and Quality
- Theme 4: Water and Human Settlements of the Future
- Theme 5: Ecohydrology, Engineering Harmony for a Sustainable World
- Theme 6: Water Education, Key for Water Security

## INTERNATIONAL HYDROLOGICAL PROGRAMME IN AFRICA (IHP-AFRICA)

Africa has a combined population of over 1 billion people and represents about 16% of the global population. Its water resources are estimated to be nearly 9% of the world's freshwater resources. However, these resources are unevenly distributed, with the six most water-rich countries in Central and Western Africa holding 54% of the continent's total resources and the 27 most water-poor countries holding only 7%.

For Africa, sustainable socioeconomic progress is seldom possible without adequate development of water resources to support food production, industry, the environment and other human needs. In Africa, the uneven and unpredictable nature of water resources has determined the human condition and lifestyles of nomadism, migrations and displacement of people.

The IHP (International Hydrological Programme) is contributing to capacity enhancement, sharing of knowledge and regional cooperation across the themes of its eighth phase. Over 20,000 government officials, experts and other stakeholders from 40 countries from Africa have been involved in IHP activities.<sup>1</sup>

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<sup>1</sup> <https://en.unesco.org/themes/water-security/hydrology/about-us/national-committees/africa>

# SOME KEY ACHIEVEMENTS IN THE REGION BY THEME

## THEME 1: WATER-RELATED DISASTERS AND HYDROLOGICAL CHANGE

Water extremes, floods and droughts and climate risk management – a technical regional workshop was organized on Climate Change Risk, Vulnerability Assessment and Early Warning for Africa in June 2017 at the AGRHYMET Regional Centre in Niamey, Niger. The workshop was attended by more than 40 participants (6 women) from 17 countries in Africa. A needs assessment for hydro-climate services for improved water resources management in vulnerable regions within Zambezi basin focusing on Malawi, Mozambique, Zambia and Zimbabwe has been conducted.

UNESCO supports technology exchange to help countries in strengthening their capacity in water-related disaster risk reduction. Training on African Drought Monitor for Southern African

Countries in collaboration with Princeton University, Southampton University and WaterNet. The system was successfully shared in the Southern African Development Community's (SADC) region and 35 experts (9 women) from meteorological and hydrological services of 12 countries from SADC were capacitated in using the African Drought and Flood Monitoring System. UNESCO conducted pilot studies on the use of hydro-climate services at national level for water managers in Namibia, Botswana, and Swaziland and at community level for farmers in Malawi, Zambia and Zimbabwe. Drought mitigation policies, strategies and plans at national and basin levels within the SADC<sup>2</sup> region were reviewed and discussed, leading to recommendations for better addressing drought challenges.

2 Southern African Development Community



## THEME 2: GROUNDWATER IN A CHANGING ENVIRONMENT

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UNESCO assisted UNICEF in identifying high-probability-deep-ground-water drilling sites in Ethiopia's hyper-arid Afar Regional State, based on geo-hydrological studies and utilizing GIS.<sup>3</sup> A follow-up study on the aquifer re-charge capacities to enable sustainable management of wells is being discussed.

UNESCO IHP continues its efforts in the setting up of multi-countries cooperation mechanisms for the governance and management of transboundary aquifers located in North Africa, Southern Africa, Eastern Africa and the Sahel region. In August 2017, Botswana, Namibia and South Africa agreed on the establishment of the first mechanism for the governance and management of a transboundary aquifer in Southern Africa, the Stampriet Aquifer shared by them. Mapping of Transboundary Aquifers in Central Africa was carried out as a pilot case, between Cameroon and Chad and will be expanded to other countries in the region. Between 2015 and 2016, UNESCO helped to strengthen the capacities of water officials of Member States from West Africa in managing of transboundary waters, with a special focus on the River Basin Organizations present in the region (Volta, Senegal, Chad, Niger and Gambia).

## THEME 3: ADDRESSING WATER SCARCITY AND QUALITY

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UNESCO is mapping and reinforcing the capacity of Member States in West Africa on the management of water quality, in the framework of Agenda 2030. In the light of the growing economies and industrialization in the region, special attention is given to developing capacities and increasing awareness on Emerging Pollutants. Sub-regional trainings were organized in West Africa in 2016 and 2017. A regional training initiative, expanded to 25 countries from sub-Saharan Africa, is scheduled for the end of 2018.

## THEME 5: ECOHYDROLOGY, ENGINEERING HARMONY FOR A SUSTAINABLE WORLD

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During the 6th Edition of the Africa Water Week (May-June 2016, Dar Es Salaam, Tanzania), IHP and the UNESCO category 2 International Centre for Coastal Ecohydrology (ICCE; Faro, Portugal) organized the session "Ecohydrology for sustainability and water security in Africa", attended by 48 participants from several African countries (17 women). The objective of the session was to raise the awareness of the participants regarding the Ecohydrological methodology as an innovative, low-energy and low cost, advanced science approach using ecosystem processes and ecosystem biotechnologies.

In a successful example of south-south cooperation, UNESCO Abuja Office and UNESCO Jakarta Office organized a regional workshop on ecohydrology and water security, in 2017, in Abuja, Nigeria, with over 60 participants from 14 countries, under Malaysian Funds-in-Trust and with the cooperation of the Category 2 Centre on Integrated River Basin Management (Nigeria).

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3 Geographic Information System mapping technology



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## THEME 6: WATER EDUCATION, KEY FOR WATER SECURITY

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IHP is implementing the project dedicated to human capacity development in the water sector in Africa through the New Partnerships for Africa's Development (NEPAD) with African Network of Centres of Excellence in Water Sciences and Technology (CoEs) to sustainably address the lack of skilled water sector junior and senior actors at both professional and technical levels. National human capacity development frameworks will be developed in 14 countries hosting NEPAD<sup>4</sup> centre of excellence combined with exchange of experts among the different NEPAD centres. Other regional human capacity building initiatives in Africa include: the regional programme on transboundary water management in Sahel region; the programme on the review of hydrological norms in West and Central Africa; the SADC Integrated Water Resources Management Initiative (SADC-WIN). The UNESCO Offices in Dakar and Yaoundé organized several training programmes on the estimation of groundwater recharge in arid and semi-arid regions, water policy and Integrated Water Resources Management, use of remote sensing for groundwater targeting and finally on hydrological data acquisition for water management.

# THE UNESCO WATER FAMILY

The UNESCO Water Family in Africa met in Port Elizabeth, South Africa from 12 to 13 July 2017.

The Sixth IHP Africa regional meeting was attended by IHP focal persons from 26 African countries, representatives of the IHP, high-level policy makers and water experts. The following resolutions were adopted by the participants: Member States are to establish and/or strengthen IHP National Committees in the respective countries to enable more work in the water sector; Member States are to align their activities in the water sector with those of the Regional Economic Communities (RECs), Africa Agenda 2063, UNESCO Priority Africa and Priority Gender; UNESCO should take lead in the implementation and monitoring of the Sustainable Development Goal 6 by virtue of UNESCO-IHP being the only intergovernmental Programme in Water science and capacity-development within the UN-System. It was also agreed to organise the 7th IHP Africa Regional Committee Meeting in Cabo Verde in 2019.

The 2017 edition of the World Water Assessment Programme's (WWAP) World Water Development Report was launched in South Africa on World Water Day, with several events in countries of the continent, in collaboration with regional UNESCO Offices.

## WATER-RELATED UNESCO CHAIRS IN AFRICA

- 1 UNESCO Chair in Geohydrology, University of the Western Cape, South Africa.
- 2 UNESCO Chair in Water, Women and Decision-making, Ivorian Center of Economy and Social Research (CIRES), University of Cocody, Abidjan, Côte d'Ivoire.
- 3 UNESCO Chair in Water Management, University of Bangui, Central African Republic.
- 4 UNESCO Chair in Women, Science and Reasoned Water Management in West Africa, University of Lomé, Togo.

## WATER-RELATED UNESCO CATEGORY 2 CENTRES

- 1 Regional Centre for Integrated River Basin Management (RC-IRBM), Kaduna, Nigeria.
- 2 Regional Centre on Groundwater Resources Education, Training and Research, Nairobi, Kenya.
- 3 Africa Regional Centre for Ecohydrology, Addis Abba, Ethiopia.
- 4 UNESCO Centre on Global Changes and Water Resources in Africa, South Africa (approved by UNESCO, agreement is yet to be signed).





Omo River using a wooden boat © UNESCO Nairobi

**Cover photo:**

Aerial view of river, Bissagos Archipelago, Guinea Bissau,  
UNESCO Biosphere Reserve  
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**INTERNATIONAL HYDROLOGICAL PROGRAMME**

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